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(21) International Application Number: PCT/US00/40266

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(22) International Filing Date: 21 June 2000 (21.06.2000)

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English

(26) Publication Language:

English

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Published:

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- Before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments.

(71) Applicant (*for all designated States except US*): THE TRUSTEES OF THE UNIVERSITY OF PENNSYLVANIA [US/US]; Center for Technology Transfer, Suite 300, 3700 Market Street, Philadelphia, PA 19107 (US).

(72) Inventors; and

(75) Inventors/Applicants (*for US only*): EBERWINE, James, H. [US/US]; 3918 Henry Avenue, Philadelphia, PA 19129 (US). HEMBY, Scott, E. [US/US]; 450 Fourth Fairway Drive, Roswell, GA 30076 (US).

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For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.



WO 01/00882 A1

(54) Title: MOLECULAR CORRELATES OF SCHIZOPHRENIA AND METHODS OF DIAGNOSING SCHIZOPHRENIA VIA THESE MOLECULAR CORRELATES

(57) Abstract: Molecular correlates of genes and expressed sequence tags useful in the diagnosis and monitoring of treatment of patients suffering from schizophrenia are provided.

PATENT COOPERATION TREATY

From the INTERNATIONAL SEARCHING AUTHORITY

To: JANE MASSEY LICATA
LAW OFFICES OF JANE MASSEY LICATA
66 E. MAIN STREET
MARLTON, NEW JERSEY 08053

Docket System
Status Report
Docket Book

12/24/00 ANS

RECEIVED
OCT 26 2000
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NOTIFICATION OF TRANSMITTAL OF
THE INTERNATIONAL SEARCH REPORT
OR THE DECLARATION

(PCT Rule 44.1)

Applicant's or agent's file reference PENN-0718	Date of Mailing (day/month/year) 24 OCT 2000
International application No. PCT/US00/40266	FOR FURTHER ACTION See paragraphs 1 and 4 below International filing date (day/month/year) 21 JUNE 2000
Applicant The Trustees of the University of Pennsylvania	

1. The applicant is hereby notified that the international search report has been established and is transmitted herewith.

Filing of amendments and statement under Article 19:

The applicant is entitled, if he so wishes, to amend the claims of the international application (see Rule 46):

When? The time limit for filing such amendments is normally 2 months from the date of transmittal of the international search report; however, for more details, see the notes on the accompanying sheet.

Where? Directly to the International Bureau of WIPO

34, chemin des Colombettes
1211 Geneva 20, Switzerland
Facsimile No.: (41-22) 740.14.35

For more detailed instructions, see the notes on the accompanying sheet.

2. The applicant is hereby notified that no international search report will be established and that the declaration under Article 17(2)(a) to that effect is transmitted herewith.

3. With regard to the protest against payment of (an) additional fee(s) under Rule 40.2, the applicant is notified that:

the protest together with the decision thereon has been transmitted to the International Bureau together with the applicant's request to forward the texts of both the protest and the decision thereon to the designated Offices.

no decision has been made yet on the protest; the applicant will be notified as soon as a decision is made.

4. **Further action(s):** The applicant is reminded of the following:

Shortly after 18 months from the priority date, the international application will be published by the International Bureau. If the applicant wishes to avoid or postpone publication, a notice of withdrawal of the international application, or of the priority claim, must reach the International Bureau as provided in rules 90 bis 1 and 90 bis 3, respectively, before the completion of the technical preparations for international publication.

Within 19 months from the priority date, a demand for international preliminary examination must be filed if the applicant wishes to postpone the entry into the national phase until 30 months from the priority date (in some Offices even later).

Within 20 months from the priority date, the applicant must perform the prescribed acts for entry into the national phase before all designated Offices which have not been elected in the demand or in a later election within 19 months from the priority date or could not be elected because they are not bound by Chapter II.

Name and mailing address of the ISA/US
Commissioner of Patents and Trademarks
Box PCT
Washington, D.C. 20231

Facsimile No. (703) 305-3230

Authorized officer:

JEHANNE SOUATA

Telephone No. (703) 308-1235

PATENT COOPERATION TREATY

From the INTERNATIONAL SEARCHING AUTHORITY

To: JANE MASSEY LICATA
LAW OFFICES OF JANE MASSEY LICATA
66 E. MAIN STREET
MARLTON, NEW JERSEY 08053

PCT

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(PCT Rule 44.1)

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<p>International application No. PCT/US00/40266</p>	<p>International filing date (day/month/year) 21 JUNE 2000</p>
<p>Applicant The Trustees of the University of Pennsylvania</p>	

1. The applicant is hereby notified that the international search report has been established and is transmitted herewith.

Filing of amendments and statement under Article 19:
The applicant is entitled, if he so wishes, to amend the claims of the international application (see Rule 46):

When? The time limit for filing such amendments is normally 2 months from the date of transmittal of the international search report; however, for more details, see the notes on the accompanying sheet.

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- no decision has been made yet on the protest; the applicant will be notified as soon as a decision is made.

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Within 19 months from the priority date, a demand for international preliminary examination must be filed if the applicant wishes to postpone the entry into the national phase until 30 months from the priority date (in some Offices even later).

Within 20 months from the priority date, the applicant must perform the prescribed acts for entry into the national phase before all designated Offices which have not been elected in the demand or in a later election within 19 months from the priority date or could not be elected because they are not bound by Chapter I.

<p>Name and mailing address of the ISA/US Commissioner of Patents and Trademarks Box PCT Washington, D.C. 20231</p> <p>Facsimile No. (703) 305-3230</p>	<p>Authorized officer JEHANNE SODAYA</p> <p>Telephone No. (703) 308-1235</p>
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PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference PENN-0718	FOR FURTHER ACTION	see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.
International application No. PCT/US00/40266	International filing date (day/month/year) 21 JUNE 2000	(Earliest) Priority Date (day/month/year) 25 JUNE 1999
Applicant The Trustees of the University of Pennsylvania		

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 4 sheets.

It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

- a. With regard to the language, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
 - the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).
- b. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international search was carried out on the basis of the sequence listing:
 - contained in the international application in written form.
 - filed together with the international application in computer readable form.
 - furnished subsequently to this Authority in written form.
 - furnished subsequently to this Authority in computer readable form.
 - the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
 - the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

2. Certain claims were found unsearchable (See Box I).3. Unity of invention is lacking (See Box II).

4. With regard to the title,

- the text is approved as submitted by the applicant.
- the text has been established by this Authority to read as follows:

5. With regard to the abstract,

- the text is approved as submitted by the applicant.
- the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the drawings to be published with the abstract is Figure No. _____

- as suggested by the applicant.
- because the applicant failed to suggest a figure.
- because this figure better characterizes the invention.

None of the figures.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US00/40266

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) :C12Q 1/68; C12P 19/34; C07H 21/04

US CL :435/6, 91.1; 536/23.1

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 435/6, 91.1; 536/23.1

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

Please See Extra Sheet.

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	EASTWOOD S. L. et al. Hippocampal and Cortical Growth-Associated Protein-43 Messenger RNA in Schizophrenia. Neuroscience. 1998. Vol 86. pages 437-448, especially abstract.	1-3
X	SOKOLOV B.P. Expression of MNDAR1, GluR1, GluR7, and KA1 Glutamate Receptor mRNAs is Decreased in Frontal Cortex of 'Neuroleptic-Free' Schizophrenics: Evidence on Reversible Up-Regulation by Typical Neuroleptics. Journal of Neurochemistry. 1998. Vol 71. pages 2454-2464, especially abstract.	1 ----
Y		2-3

Further documents are listed in the continuation of Box C. See patent family annex.

* Special categories of cited documents:	"T"	later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"A" document defining the general state of the art which is not considered to be of particular relevance	"X"	document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"E" earlier document published on or after the international filing date	"Y"	document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)		
"O" document referring to an oral disclosure, use, exhibition or other means	"g."	document member of the same patent family
"P" document published prior to the international filing date but later than the priority date claimed		

Date of the actual completion of the international search

27 SEPTEMBER 2000

Date of mailing of the international search report

24 08 2000

Name and mailing address of the ISA/US
Commissioner of Patents and Trademarks
Box PCT
Washington, D.C. 20231

Facsimile No. (703) 305-3230

Authorized officer
JEHANNE SOUAYA
Telephone No. (703) 308-1235

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US00/40266

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X ----	GLANTZ L.A. et al. Reduction of Synaptophysin Immunoreactivity in the Prefrontal Cortex of Subjects with Schizophrenia. Archives of General Psychiatry. October 1997. Vol 54. pages 943-952, especially abstract.	1 ----
Y		2-3

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US00/40266

B. FIELDS SEARCHED

Electronic data bases consulted (Name of data base and where practicable terms used):

STN, Medline, Caplus, Uspatful

search terms: schizophrenia, diagnose, microarray, adaptin, synaptic vesicle transporter, synaptotagmin I,
synaptotagmin IV, Gaba transporter 1

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US00/40266

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STN, Medline, Capplus, Uspatful
search terms: schizophrenia, diagnose, microarray, adaptin, synaptic vesicle transporter, synaptotagmin I,
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US CL :435/6, 91.1; 536/23.1

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 435/6, 91.1; 536/23.1

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

Please See Extra Sheet.

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	EASTWOOD S. L. et al. Hippocampal and Cortical Growth-Associated Protein-43 Messenger RNA in Schizophrenia. Neuroscience. 1998. Vol 86. pages 437-448, especially abstract.	1-3
X ----	SOKOLOV B.P. Expression of MNDAR1, GluR1, GluR7, and KA1 Glutamate Receptor mRNAs is Decreased in Frontal Cortex of 'Neuroleptic-Free' Schizophrenics: Evidence on Reversible Up-Regulation by Typical Neuroleptics. Journal of Neurochemistry. 1998. Vol 71. pages 2454-2464, especially abstract.	1 ----
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A document defining the general state of the art which is not considered to be of particular relevance	"X"	document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
E earlier document published on or after the international filing date	"Y"	document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
L document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"&"	document member of the same patent family
O document referring to an oral disclosure, use, exhibition or other means		
P document published prior to the international filing date but later than the priority date claimed		

Date of the actual completion of the international search

27 SEPTEMBER 2000

Date of mailing of the international search report

24 OCT 2000

Name and mailing address of the ISA/US
Commissioner of Patents and Trademarks
Box PCT
Washington, D.C. 20231

Authorized officer

JEHANNE SOUAYA

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INTERNATIONAL SEARCH REPORT

International application No.

PCT/US00/40266

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	GLANTZ L.A. et al. Reduction of Synaptophysin Immunoreactivity in the Prefrontal Cortex of Subjects with Schizophrenia. Archives of General Psychiatry. October 1997. Vol 54. pages 943-952, especially abstract.	1
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International application No.

PCT/US00/40266

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Electronic data bases consulted (Name of data base and where practicable terms used):

STN, Medline, Caplus, Uspatful

search terms: schizophrenia, diagnose, microarray, adaptin, synaptic vesicle transporter, synaptotagmin I,
synaptotagmin IV, Gaba transporter 1

PATENT COOPERATION TREATY

PCT

NOTIFICATION OF ELECTION
(PCT Rule 61.2)

From the INTERNATIONAL BUREAU

To:

Commissioner
US Department of Commerce
United States Patent and Trademark
Office, PCT
2011 South Clark Place Room
CP2/5C24
Arlington, VA 22202
ETATS-UNIS D'AMERIQUE

in its capacity as elected Office

Date of mailing (day/month/year) 22 August 2001 (22.08.01)	
International application No. PCT/US00/40266	Applicant's or agent's file reference PENN-0718
International filing date (day/month/year) 21 June 2000 (21.06.00)	Priority date (day/month/year) 25 June 1999 (25.06.99)
Applicant EBERWINE, James, H. et al	

1. The designated Office is hereby notified of its election made:

in the demand filed with the International Preliminary Examining Authority on:

12 January 2001 (12.01.01)

in a notice effecting later election filed with the International Bureau on:

2. The election was

was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland Facsimile No.: (41-22) 740.14.35	Authorized officer Eugénia SANTOS (Fax 338.87.40) Telephone No.: (41-22) 338.83.38
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